

**TERMS OF REFERENCE
INSTITUTIONAL CONTRACT**

Section:	WASH Section	Date:	13 th April 2022
Title:	Audit of the compliance and operation of the Omniprocessor	Duty station:	Beirut, Lebanon
Reporting to:	WASH section	Contract type:	
Duration:	2 months (indicative)	Starting date:	July 2022

Section	Content
Background	<p>UNICEF WASH Program has scaled up its response to the Syria crisis and provides support and services to both refugees and host Lebanese communities, and the Ministry of Energy and Water and its regional Water Establishments' bearing the most significant burden resulting from the impact of the Syrian Crisis on the water and sanitation sector in Lebanon.</p> <p>UNICEF WaSH section, The MoEW and the BWE have identified the need to support IAAT Waste Water Treatment Plant (WWTP) by reducing the volume of sludge reaching the WWTP and currently disturbing the conventional treatment processes of this large plant.</p> <p>UNICEF WASH section has selected to install an Omniprocessor proposed by Tidetechnocrates to pilot and demonstrate the possible treatment of the wastewater and sceptic sludges coming from the ISs into treated wastewater safe for discharge into the environment and bio-safe solids. The system is currently under commissioning phase and will ave had a few weeks of operation before the</p>
Purpose and Objective	<p>The objective of this assignment is to audit the operation and treatment effectiveness of the innovative treatment plant installed to treat the sludge and wastewater generated by the residents of the neighbouring informal settlements.</p> <p>The evaluation or audit will enable to confirm and inform that the treatment is efficient as well as evaluate the proper management of the plant by the Operators.</p>
Methodology	<p>The selected experts or firms will develop the performance assessment of the omniprocessor. This will include:</p> <ul style="list-style-type: none"> - Environmental audit and compliance with the different Lebanese regulations, - Technical audit, - Operational performance, - Engineering performance - Costs for operations and maintenance <p>The company could propose in its offer a additional and revision of the criteria of evaluation for UNICEF and the Bekaa Water Establishment validation. UNICEF and the BWEs will evaluate the modification or addition of parameters and evaluation criteria.</p> <p>1- Revision of the data,</p> <p>The Consulting firm will be in charge of reviewing the data and information pertaining to the project :</p> <ul style="list-style-type: none"> - Operation of the plant (overall and individual component), such as : <ul style="list-style-type: none"> o Process followed in operations of the plant, o Operations within normal load parameters, o Peak loading, if any, o Over loading, if any, o Review of historic plant operations data, - Verification and Review of all records of the plant <ul style="list-style-type: none"> o Asset List at Site o Material Movement Register o Maintenance Schedule

- Maintenance and repair logs
- Septage Quality Test Results
- Consumables usage
- Data logged from each component
- Operating Manuals
- Detailed Project Report

2. The monitoring of the air, wastewater and solids

The selected company will ensure compliance with the Lebanese Standard norms. Sampling and monitoring will be carried out as per the prevailing Lebanese standards. The frequency of monitoring will be for continuous Six (06) days

- Air monitoring (DG Set and Pyrolysis) will be carried out to find the emission level of CO, SO₂, Particulates, TOC, HF, NO_x and Odour (Two samples per day). The Dioxins and Furans and the Odour test are to be checked at each stage of the process.

- Liquid Waste (Two sample per day): pH, BOD, COD, TSS, NH₄-N, Total Nitrogen, Fecal Coliform, Phosphate, Helminth Eggs, Salmonella, E coli, Virus profile, Protozoa profile, Mercury, Cadmium, Lead, Arsenic, Chromium, Copper, Nickel, Titanium, Zinc,

- Solid Waste (Two sample per day - To be done for both biochar and dried sludge, biological parameters applicable for dried sludge): pH, Moisture, Bulk density, TOC, Total Nitrogen, Total Phosphate, Total Potassium, Conductivity, C/N ratio (Biological parameters).

The treated water will have to be sampled in both holding tank and inlet to holding tank.

The septage input to a treatment plant to also be tested on the same days that outputs are tested

The sampling is to be done at each step of the process to understand component level efficiency (outlet)

The assessment of the Noise need to be performed as per prevalent norms and at 1m, 5m and 15m from the plant location.

The company must assess the compliance in ensuring pathogen-free discharges from all outputs (solid, liquid, gas). In the event the plant will not ensure a pathogen-free discharge, the company must provide a recommendation of additional components, if any, to ensure 100% pathogen removal.

The two samples per day are to be tested at two different accredited laboratories for Air, Liquid waste, and solid waste.

3. Conditional Assessment of Components

The company will assess in details

- the civil and structural elements (compound walls, Aesthetics, containers for plant operation, container for office, storage, toilet block, tanks and storage, gates, concrete benches, internal road, pathways, sheds, treatment tanks, stairways, any others)
- Mechanical elements (Septage receiving station, toilet block, cleaning equipment, dewatering unit, dryer assembly with augers and hoppers, pyrolyzer unit, Air filter, polymer mixer, pasteurization unit, wastewater treatment plant, tool kits, any others)
- Electronic elements (Sensors and control equipment, VFD speed controller, moisture meter, ORP meter, UPS, batteries, CCTVs, Wightng scale, Wifi router, pH meter, Any others)
- Electrical equipment (Electrical Panels, Pumps and Motors, Fans and Air conditioning, Control Panels, Any other)
- Miscellaneous equipment (Ladder, Fire Extinguisher, Office Furniture, Any other)

Also the company will be in charge of assessing if spares were needed for the above components? If yes, for which ones and how many quantities? Are the components being used as per their usage guidelines?

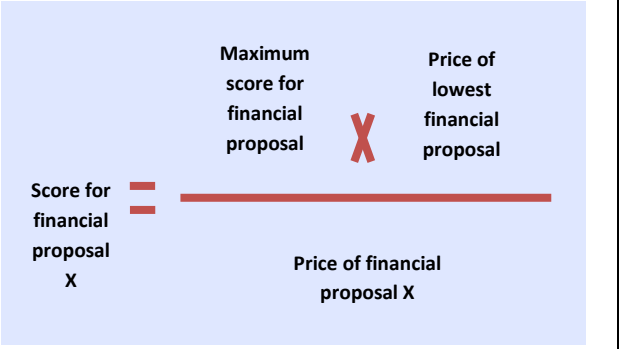
4- Estimation of monthly and annual operating and maintenance cost (optional)

Depending on the overall cost of the offer, Unicef could task the company to estimate the monthly and annual operation and maintenance cost of the treatment plant for three years. This will be assessed by looking in detail at the following monthly and yearly consumptions :

- Use of consumables,
- Staff deployment
- Maintenance and repairs
- Part replacement cost
- Spares procurement
- Office operations
- Sources of revenue generation (including potential co-composting generation)
- Testing and reporting

	<p>- Any other</p> <p>5- validation of the process. The validation of the process will be based on comparing the present working conditions of the Septage Treatment Plant against the standards or planned design for its construction and established standards. This will be done by analyzing and comparing the records to understand the plant operating capacity and the current capacity.</p> <p>6. HSE compliance Identify the gaps and propose measures for the safety of the Workers with safety audit and overall plant improvement suggestions, if required. The company will check HSE compliance and evaluate the processes followed. The company will deliver a Safety Audit including safety regarding hot surfaces and fire safety and a Health and Environment parameters check.</p>
<p>Profile requirement</p>	<p>The institution consists of a team of full-time individuals who will be coordinating directly with the WaSH In Emergency Consultant at the UNICEF LCO. The applicants should have a combination of both technical skills (understanding of the Omniprocessor treatment process and features) and Environmental Lebanese Legislation (Assessing the compliance with the discharge limit in the Environment). It's important to know that the company should have Fluency in Arabic and English amongst the team overall to ensure smooth communication with operators. The team leader should have at least 7 years of work experience in conducting and assessing the environmental compliance of wastewater treatment plants.</p> <p>The composition of the team would need to combine the following expected profiles and skills: The Project manager will be responsible to ensure timely and effective implementation of the contract. The proposed person should have experience in undertaking a similar role. Personnel in charge of sampling should have 2 years of experience in water and wastewater sampling. All other proposed personnel should have qualifications and experience applicable to the position that they are being proposed for.</p> <p>Experience:</p> <ul style="list-style-type: none"> • Experience in environmental and safety audit • Demonstrated experience in wastewater treatment • Minimum 5 years experience in the delivery of Environmental audits and HSE compliance. <p>Technical knowledge:</p> <ul style="list-style-type: none"> • Environmental audit and compliance in terms of air, wastewater and solids emission, discharge and storage. • Understands the Omniprocessor treatment process. • In addition, the team needs to demonstrate experience in Civil works, mechanical, Electronic and electrical fields. • Demonstrated experience in Health Safety and Environment (HSE). <p>Languages:</p> <p>Mastering Arabic and English reading, writing and speaking.</p>

Deliverables and schedule	<ul style="list-style-type: none"> ○ An independent assessment and audit report ○ A Safety audit report ○ An Asset Audit Report and durability of the equipment ○ A Process and Plant - Suggestions for improvement report along with estimates of cost for any infrastructure that is required ○ An Estimation of operating cost report under respective subheadings ○ A Performance Evaluation Report (Technical and Operational) and compliance with standards : <ul style="list-style-type: none"> - Comparison of the existing plant performance vs sampling data results - Equipment / spare part replacement report along with cost estimates - Pathogen free discharge evaluation - current practices, the potential for improvement along with estimates of cost ○ A summary report of the above <p>The company will provide a proposed schedule in its offer</p>																							
Qualifications	<p>The offers will be evaluated regarding the different criteria listed under:</p> <table border="1" data-bbox="331 712 1492 2119"> <thead> <tr> <th data-bbox="331 712 699 752">Criteria</th> <th data-bbox="699 712 855 752">Marks</th> <th data-bbox="855 712 1492 752">Benchmarcks</th> </tr> </thead> <tbody> <tr> <td data-bbox="331 752 699 1025">Team relevant experience</td> <td data-bbox="699 752 855 1025">15 points</td> <td data-bbox="855 752 1492 1025"> The availability of necessary staff and their experience will be assessed as follow: Programme Manager with at least 7 years experience (5 points) Team members with experience in Civil Works, Mechanical, Electronic and Electrical (2 points per each) HSE experience (2 points) </td> </tr> <tr> <td data-bbox="331 1025 699 1200">Timeframe of the offer</td> <td data-bbox="699 1025 855 1200">10 points</td> <td data-bbox="855 1025 1492 1200"> The bidder needs to provide a timeframe for the offer. The minimum duration is about 30 working days. The maximum points will be given to the minimum number of days. </td> </tr> <tr> <td data-bbox="331 1200 699 1458">Organization capability</td> <td data-bbox="699 1200 855 1458">25 points</td> <td data-bbox="855 1200 1492 1458"> The organization needs to provide all the different accreditation to the Ministry of Energy and Water (MoEW), the Ministry of Environment (MoE) and the Council for Development and Reconstruction (CDR). (5 points for each) Provide at least 2 references of previous audits (5 points per reference (max. 10 points)) </td> </tr> <tr> <td data-bbox="331 1458 699 1632">Methodology for executing the scope of work -</td> <td data-bbox="699 1458 855 1632">20 points</td> <td data-bbox="855 1458 1492 1632"> The bidder will provide a 2 to 5 pager detailing the tasks they will handle in this audit, the expected timeframe and demonstrating the understanding of the scope of works 15 points Understanding of the septage treatment 5 points </td> </tr> <tr> <td data-bbox="331 1632 699 1890">Demonstrating experience of similar executed projects.</td> <td data-bbox="699 1632 855 1890">20 points</td> <td data-bbox="855 1632 1492 1890"> Report provided on small projects 2 points per project, wastewater treatment related project 3 points per project, non-sewer wastewater treatment 5 points per project </td> </tr> <tr> <td data-bbox="331 1890 699 2119">Cost</td> <td data-bbox="699 1890 855 2119">10 points</td> <td data-bbox="855 1890 1492 2119"> The maximum score will be assigned to the lowest financial proposal. All other financial proposals receive scores in inverse proportion according to the following formula: </td> </tr> </tbody> </table>			Criteria	Marks	Benchmarcks	Team relevant experience	15 points	The availability of necessary staff and their experience will be assessed as follow: Programme Manager with at least 7 years experience (5 points) Team members with experience in Civil Works, Mechanical, Electronic and Electrical (2 points per each) HSE experience (2 points)	Timeframe of the offer	10 points	The bidder needs to provide a timeframe for the offer. The minimum duration is about 30 working days. The maximum points will be given to the minimum number of days.	Organization capability	25 points	The organization needs to provide all the different accreditation to the Ministry of Energy and Water (MoEW), the Ministry of Environment (MoE) and the Council for Development and Reconstruction (CDR). (5 points for each) Provide at least 2 references of previous audits (5 points per reference (max. 10 points))	Methodology for executing the scope of work -	20 points	The bidder will provide a 2 to 5 pager detailing the tasks they will handle in this audit, the expected timeframe and demonstrating the understanding of the scope of works 15 points Understanding of the septage treatment 5 points	Demonstrating experience of similar executed projects.	20 points	Report provided on small projects 2 points per project, wastewater treatment related project 3 points per project, non-sewer wastewater treatment 5 points per project	Cost	10 points	The maximum score will be assigned to the lowest financial proposal. All other financial proposals receive scores in inverse proportion according to the following formula:
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Timing	The contract should ideally start in July 2022		